

Innovation in VET

Croatia



Agency for Vocational
Education and Training
and Adult Education

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Table of contents

A. Introduction	3
B. Use of EU founded projects to introduce bottom-up innovations in VET in Croatia	4
1. Basic information on the initiative.....	4
2. Rationale	4
3. Initiators and stakeholders involved	5
C. Implementation	6
1. Implementation arrangements of project “ <i>Implementation of New Curricula</i> ”	6
2. Implementation arrangements of project “ <i>Modernisation of school curricula in VET schools in line with the changing needs of the labour market/economy</i> ”	7
D. Results	9
Positive outcomes and lessons learned.....	11
Bottlenecks and challenges	11
E. Conclusion	12

A. Introduction

VET system in Republic of Croatia has been going through many changes, modernisations and innovations in last several years. Agency for VET and Adult Education (AVETAE) with support of the Ministry of Science, Education and Sport (MoSES) initiated these processes.

This reforms and re-shaping of VET were based on set of principles (e.g. accessibility, flexibility, relevance and rationality, partnership, quality assurance, transparency) that were set out in “VET System Development Strategy 2008 – 2013” which was Croatian answer to Copenhagen declaration on enhanced European Cooperation in Vocational Education and Training.

AVETAE’s strategic orientation was to use EU and other founded projects to additionally support process of VET reforms in Croatia. Since 2006, AVETAE has prepared and implemented various projects in the area of VET and Adult Education in total value of more than 37 million EUR.

The EU funded projects and piloting programmes that had been implemented or are being implemented in Croatia in the last decade were all oriented on introductions of innovations and modernisation of VET. Interventions are implemented on two levels. One level are innovations dealing with system level like:

- Introduction of competence based and learning outcome oriented VET curricula
- VET quality assurance
- Etc.

Above-mentioned innovations were introduced by top-down approach. They have been initiated and led from above (MoSES and AVETAE) and supported through EU funding (CARDS program; Instrument for Pre-accession Assistance (IPA)).

On second level, AVETAE planned and implemented interventions that were specifically aimed at Croatian VET providers. They were given opportunities to be involved in different activities that meant introduction and/or implementation of innovations through bottom-up approach. Complementary to system wide innovations, AVETAE has chosen this approach as an efficient way to introduce fast, targeted, small-scale innovations that raised quality of VET school provision, raised capacities of VET teachers and trainers, provided VET students with competences that are relevant at local/regional labour market and all in partnership of VET providers and stakeholders. These interventions were also financed through EU funds.

B. Use of EU founded projects to introduce bottom-up innovations in VET in Croatia

1. Basic information on the initiative

As it was already mentioned AVETAE has extensively used EU founded projects to support introduction of innovations in VET on both system and VET provider level.

In scope of this, Croatian VET providers have been involved in different development opportunities financed through EU funded projects as experts, grant beneficiaries or local stakeholders. Purpose of these participative initiatives was to build capacities of schools and their professional and management staff to be capable to work on constant development and improvement of the educational service they provide and introduction of innovations.

In this article, two consecutive initiatives/projects will be presented with more details: *Implementation of new curricula* and *Modernisation of school curricula in VET schools in line with the changing needs of the labour market / economy*

2. Rationale

The *Implementation of New Curricula* project was funded by the European Union IPA Component IV Operational programme – Human Resources Development. It was implemented in 2010 and 2011 by the AVETAE. It comprised both from the service and grant contract. The overall objective of this IPA project was to reinforce the overall modernisation and flexibility of the VET system in the Republic of Croatia, to improve its labour market relevance and responsiveness to structural changes in the Croatian economy. The purpose of the project was to encourage a systemic approach towards development of innovative culture in VET schools – in line with labour market needs at local / regional levels. This project reinforced the innovative capacities of VET schools and enabled them to be engaged even more in being the key promoters of VET innovations.

Project *Modernisation of school curricula in VET schools in line with the changing needs of the labour market / economy* was also founded under EU IPA Component IV Operational programme – Human Resources Development and implemented in 2012 and 2013 by the AVETAE. It was a continuation of activities that were implemented through *Implementation of new curricula* project. The aim of the project was to reinforce the introduction of new modern and innovative contents / features into VET schools provision within initial VET system, with a view of ensuring their labour market relevance / adaptability, raising their capacities for provision of modern school based practical training as well as meeting the needs of the knowledge-based economy. VET schools were to focus on developing and implementing new and modern scientific, technical and innovative achievements in their provision that would raise

labour market relevance of their students. This also included relevant capacity building activities, in close co-operation with the key stakeholders at the regional / local level.

3. Initiators and stakeholders involved

Both projects were initiated by Agency for Vocational Education and Training and Adult Education (AVETAЕ) that prepared project documentation and ensured financing through IPA Component IV Operational programme – Human Resources Development 2007 – 2013.

Principle of partnership was strongly promoted in both projects. VET schools were only applicants. However, they were obliged to implement their projects in partnership with at least one more VET school. In addition, they could have partners from various stakeholders and partners (e.g. social partners at the local, regional or sectoral level (respective regional / sectoral branches of professional / sectoral associations, employers' organizations, chambers and / or trade unions; regional and local authorities; non-governmental organisations; individual enterprises, small and medium enterprises (SMEs), higher education institutions and cooperatives)

C. Implementation

1. Implementation arrangements of project “*Implementation of New Curricula*”

Specific objective among others was to facilitate the delivery of new modularised curricula based on learning outcomes, particularly in view of introducing systemic approach to relevant vocational education and training (VET) innovations in line with the changes in the labour market at the local and/or regional level. Emphasis was on introduction of methods and collaborative mechanisms needed for efficient planning and implementation of VET school-based innovations and enhancement of the capacities of VET teachers for the introduction of modern, student-centred approaches to teaching.

Innovative approach contained wide range of the activities (e.g. modification of the existing VET school curricula in line with the VET curricular requirements at the national level and in close co-operation with the social partners at the local / regional level; development and integration of curricular features that make a more firm bridge between theory and practice and provide adequate supply of real-world job skills (e.g. horizontal integration of entrepreneurial learning into the VET curriculum.). Furthermore, it could include development of innovative in-service training for VET teachers for mastering: special VET didactics / modern pedagogical and VET student-centred teaching and learning methods; new technologies from the VET point of view in co-operation with other VET schools, social partners and other key stakeholders (by means of e.g.: modular training, including e-learning; study-visits / peer-learning; job-shadowing / work-placement in companies / peer-teaching; participation in / organisation of conferences, round tables and other events; etc.). Special area was technical assistance to VET schools for the delivery of documents related to VET school innovation approach, methodical tools and various innovative and practice-based teaching/ learning materials.

Incentives/financing/funding

Total value of the project was 3.7 M EUR, while individual VET school projects were between EUR 100,000 and EUR 300,000.

Cooperation arrangements

VET schools were encouraged to engage with the social partners (employers, trade unions, local governments) as well as other VET schools in implementation of their projects. This principle had an added value of inclusion wide range of stakeholders in school projects. It build

lasting partnerships on local and regional level and emphasised VET school as important stakeholder in local community.

2. Implementation arrangements of project “*Modernisation of school curricula in VET schools in line with the changing needs of the labour market/economy*”

Specific objectives of project were to provide support to VET schools in developing bottom-up approaches so they can provide up-to date competences and access to latest technologies to VET students in order to raise their labour market relevance as well as to encourage VET schools in developing and implementing new and modern scientific, technical and innovative achievements in their provision.

Priority was given to development and implementation of new innovative features in provision of VET schools in close co-operation with the social partners at the regional / local level; raising capacities (human, material, spatial, etc.) of VET schools for provision of modern practical school based training. Furthermore, emphasis was on enhancement of the capacities of VET teachers for the introduction of modern, student-centred approaches to teaching, as well as improvement of other VET school curriculum-driven aspects of the VET schools functioning in full compliance with the quality assurance mechanisms established at the national / EU level. Approach included actions aiming at improving capacities of VET schools for development and implementation of new and modern, scientific, technological and innovative achievements and features in their work with the purpose of raising VET students labour market relevance; actions aiming at improving relevant/actual know-how of teachers and trainers within their respective sector regarding modern technologies and recent industry developments through partnerships with local/regional SMEs; actions focused on increasing employability upon graduation of the VET students through better quality of VET schools provision and adaptability to labour market demands, etc.

Target groups of the project were VET students; staff of the VET schools (including VET school principals; VET teachers and trainers, trainers involved in practical training (including apprentice schemes) at enterprises, Social partners at the regional / local level.

Incentives/financing/funding

Total value of the project was 4.4 M EUR, while individual VET school projects were between EUR 40,000 and EUR 200,000.

Cooperation arrangements

VET schools were particularly encouraged to engage with the social partners (employers, trade unions, local governments) to ensure that VET school curricula, through extracurricular activities and projects, address specific shortage of vocational skills. (i.e. in sectors where there is a shortage of skills at the national/regional level; in sectors with specific skill demands in relation to the introduction of new technologies and/or sectors that are undergoing specific economic changes (industry restructuring) and where specific needs of SMEs on local/regional level exist, etc.).

D. Results

For both projects, there was substantial interest among VET schools in Croatia. For example, for project “Modernisation of school curricula in VET schools in line with the changing needs of the labour market/economy” almost one-third (app 110) of all VET schools in Croatia applied. Moreover, since all applicants had to include one or more VET school it meant that majority of VET schools in Croatia expressed interest for such type of project.

In the project „Implementation of new curricula“18 VET school projects in total value of 4.483.724,51 EUR were implemented, from which 3.709.913,19 EUR was financed through IPA IV Component. VET school projects encompassed a wide array of innovative activities and solutions regarding: (i) effective planning and implementation of innovations in VET schools, primarily those related to the introduction of new or modernisation of existing vocational curricula; (ii) strengthening capacities of VET schools; (iii) up-to-date learning contents (equipment and/or teaching aids) for an improved teaching process; (iv) training the teachers to adopt and apply state-of-the-art, student-oriented approaches to teaching; (v) Fostering partnerships and connections between VET schools and labour market stakeholders.

There were many examples of successful projects. Some of them were:

- E-learning in Automechatronics (Technical School Karlovac)
Objective of the project was to develop new modular curricula based on learning outcomes, especially with a view to adopting a systemic approach to innovations in VET. It included developing catalogues of exam questions for qualification exams at the end of the 2nd year and for final exams at the end of the 3rd year for car mechanics or at the end of the 4th year for technicians for mechatronics. Activities also included training teachers to apply modern teaching methods and use modern didactic equipment, introducing innovative extracurricular activities into primary schools, etc.
- Introducing E-learning in order to Improve Teaching Processes in Vocational Programmes in Secondary School Marko Marulić Slatina and Secondary School Isidor Kršnjavi Našice
Goals included strengthening VET teachers' capacities for the implementation of modern, student-oriented teaching methods, using modern technologies (e-learning). Focus was on making knowledge and skills acquisition more flexible and more readily available to VET school students in small and under-developed areas
- Project title: Education and Career Harmonisation Operations – ECHO (Economy School Varaždin)
Objectives included strengthening VET schools' capacities to adjust to changes on the labour market with help of the modular curriculum based on harmonising labour market needs with learning outcomes and enhancing employer participation in harmonising the modular curriculum with labour market needs. Activities included establishing mechanisms for monitoring changes and needs on the labour market through an interactive ICT system and training VET teachers on innovative methods of student career training

- With Flexible Learning Approach and Curricula Innovation towards the Labour Market (School of Electrotechnics Zagreb)
Objectives included further improvement of flexibility and innovation of VET school curricula through modern contents in the field of electrical engineering and IT. Furthermore, strengthening VET teachers' and relevant VET school staff capacities in electrical engineering and IT necessary for their active and sustainable role in planning the innovation curriculum and applying flexible learning methods in VET.

In the project „*Modernisation of school curricula in VET schools in line with the changing needs of the labour market/economy*“ 30 VET school projects were implemented through this contract scheme with a total value of 5.299.823,02 € of which 4.454.759,67 € was financed through component IV of the Instrument for Pre-Accession Assistance (IPA).

There were many examples of successful projects. Some of them were:

- *Solar Electrical Automobile/Soela (Technical School Sisak)*
Main objective was to develop new innovative extracurricular activities that encourage the use of renewable resources for running an automobile and the use of new methods of educating students and to strengthen the competitiveness of students in the labour market.
- *Green skills for electrical and mechanical engineering (Electrical and Traffic School Osijek)*
Purpose of the project was to develop green skills for enhancing employability of students in VET and increasing the flexibility of the regional workforce. Activities were aimed at development of curriculum on renewable energy sources (RES) and integrated at the secondary level in electrical and mechanical engineering as well as provided as extracurricular education activity offered for students of other VET schools and gymnasiums at local and regional level.
- *Application of computer technology (CAD and CNC) in engineering in accordance with the needs of regional/local economy (Technical School Čakovec)*
Objective was to contribute to the harmonization of supply and demand in the labor markets of Međimurje County and Karlovac County by modernizing competences and work technology. It included raising the human, material and spatial capacities, adaptation of innovative methods of teaching and raising the competences of students so they suit the needs of the local/regional economy.
- Tomorrow I work – with practice to success (Tourist and catering school Antona Štifanića Poreč)
Aim was to contribute to development of modern and innovative human potential in tourism and catering sector and establishment of direct and longer communication between education institutions and labour market. It included development of innovative learning modules and modernisation of school curricula in three participating VET schools.

Positive outcomes and lessons learned

VET schools that have been awarded grants are proof of VET schools' readiness and ability to independently recognise both local and national educational challenges posed by the Croatian economy and overall Croatian society as well as to face those challenges by developing or modernising VET curricula, raising the competence level of teaching staff and equipping the classrooms and workshops up to the highest standards. Moreover, the high-quality project proposals developed by the schools indicate that their clear vision of progress can be achieved with the assistance of EU funds.

Agency for Vocational Education and Training and Adult Education emphasises the utmost importance of supporting the successful VET schools and promoting their results, especially since there is an increasing need to prepare and enable all VET schools to use the funding available through EU funds in order to improve the quality of their work. This becomes even more important with Croatian accession to EU and future use of ESI funds.

For this purpose, AVETAE developed specific document for VET schools *European Social Fund - Manual for VET schools, Developing skills for ESF project management*. Manual is contributing to number of efforts invested by Agency for VET and Adult Education in developing solid ground for development of the organisational and professional capacities of VET schools to act as active stakeholders in their local communities.

Bottlenecks and challenges

The VET schools in Croatia, alongside with AVETAE, have so far been the key promoters of the VET innovations based on their own "bottom-up" interventions in compliance with specific needs at the local/regional level.

However, there are a number of challenges as regards the systemic/regular development of innovations by the VET schools and the reciprocal exchange/mainstreaming of the good-practice examples. If the system is to be truly responsive to the local community then it is essential that schools receive more support in their efforts, that VET system is more open for flexibility and local needs.

Despite successful implementation of previous and on-going these type of interventions, there is a need for more clear strategic framework that enables innovations at the national level, as well as VET provider level. One, possible answer to this will be future *Program for development of VET system 2015 – 2020*, which is one of the measures of newly adopted national Strategy for Education, Science and Technology.

This also implies continuous capacity building of the staff members of relevant line institutions, VET teachers, school principals and local partners have to be equipped with the necessary skills/know-how to master assignments.

E. Conclusion

A remarkable number of the VET schools in Croatia have managed to implement innovations in their local context and innovations are aligned with system-wide practice. Outcomes from such innovation processes were:

- Development of school curricula that enables students acquisitions of labour market relevant competences (i.e. competences related to new technologies)
- Improving student and teacher digital competences
- Introduction of new teaching and learning methods
- Improvement of teaching and learning facilities
- Development of teaching and learning materials
- School based In-service teacher training
- Establishment of partnership relations with stakeholders.

These AVETAE initiatives have proved to be successful approach in addressing local/regional needs of the labour market with innovative developments and initiatives of VET schools. In this way VET school find way to address current needs faster and accurate. This is important since it is obvious that national system wide changes and reform require much more time. However, these interventions are not without link with national system developments and are complementary to them.

Through the implemented projects that have been/are conducted, and other activities, AVETAE is continuously enhancing capacities of the VET schools to write innovative project proposals in order to raise the quality of their education provision, provide their students with the labour market relevant competences, and ensure modern teaching methods and equipment. Through these projects VET school have become important factor of innovation, drivers of change and development as well as key promotor of partnership in local communities.

It must be said that many initiated and developed innovations in Croatian VET schools were also result of the creativity of individuals (usually school director or teacher-led), different teams, and school expert councils.

Regardless of the initiator of the innovation, their focus was on the links between new technological developments in a particular economic sector and the resulting demands for VET system, or on the promotion of the innovative spirit usually attached to an entrepreneurial approach to labour opportunities.